WHAT IS CLAIMED IS:

1. A high-frequency-signal switching circuit comprising:

a first high-frequency-signal path including:

a high-frequency amplifier stage;

a first diode connected in series between a high-frequency-signal input end and an input end of the high-frequency amplifier stage; and

a second diode connected in series between a high-frequency-signal output end and an output end of the high-frequency amplifier stage;

a second high-frequency-signal path including a third diode connected in series between the high-frequency-signal input end and the high-frequency-signal output end; and

a switching-voltage supply section to switch the high-frequency amplifier stage between an operation state and an non-operation state, and to switch the first, second and third diodes between an ON state and an OFF state,

wherein, when a switching voltage of the switching-voltage supply section has a first value, the high-frequency amplifier stage is in the operation state, the first and second diodes are in the ON state, and the third diode is in the OFF state, so that a high-frequency signal is transferred through the first high-frequency-signal path, and when the switching voltage of the switching-voltage supply section has a second value, the high-frequency

amplifier stage is in the non-operation state, the first and second diodes are in the OFF state, and the third diode is in the ON state, so that a high-frequency signal is transferred through the second high-frequency-signal path.

2. A high-frequency-signal switching circuit according to Claim 1, wherein the high-frequency amplifier stage comprises an amplifier that includes a field-effect transistor and the switching voltage is applied to a gate of the field-effect transistor to switch the high-frequency amplifier stage between the operation state and the non-operation state.

3. A high-frequency-signal switching circuit according to Claim 1, wherein the high-frequency amplifier stage has a high input impedance and a low output impedance.

4. A high-frequency-signal switching circuit according to Claim 1, wherein an anode of each of the first and second diodes is connected to the switching-voltage supply section through a first resistor, and a cathode thereof is connected to a reference potential point through a second resistor.

5. A high-frequency-signal switching circuit according to Claim 4, wherein a resistance of each of the first and second resistors is specified such that, when the switching voltage has the first value, a cathode voltage of the first

diode is lower than that of the second diode, and when the switching voltage has the second value, the cathode voltage of the first diode is higher than that of the second diode.

6. A high-frequency-signal switching circuit according to Claim 1, wherein the switching-voltage supply section comprises a band decoder, and selectively outputs a first-value switching voltage equal to a power-supply voltage and a second-value switching voltage equal to a reference potential.

7. A high-frequency-signal switching circuit according to Claim 1, wherein the second high-frequency-signal path consists of the third diode.

8. A high-frequency-signal switching circuit according to Claim 7, wherein the high-frequency amplifier stage comprises an amplifier that includes a field-effect transistor and the switching voltage is applied to a gate of the field-effect transistor to switch the high-frequency amplifier stage between the operation state and the non-operation state.

9. A high-frequency-signal switching circuit according to Claim 7, wherein an anode of each of the first and second diodes is connected to the switching-voltage supply section through a first resistor, and a cathode thereof is connected

to a reference potential point through a second resistor.

10. A high-frequency-signal switching circuit according to Claim 9, wherein a resistance of each of the first and second resistors is such that when the switching voltage has the first value a cathode voltage of the first diode is lower than that of the second diode and when the switching voltage has the second value the cathode voltage of the first diode is higher than that of the second diode.

11. A high-frequency-signal switching circuit according to Claim 7, wherein the switching-voltage supply section comprises a band decoder, and selectively outputs a first-value switching voltage equal to a power-supply voltage and a second-value switching voltage equal to a reference potential.

12. A high-frequency-signal switching circuit according to Claim 1, wherein reverse bias voltages applied across the first and second diodes are large enough such that when the third diode is in the ON state and the first and second diodes are in the OFF state, the high-frequency signal is transferred substantially through only the second high-frequency-signal path, and a reverse bias voltage applied across the third diode is large enough such that when the first and second diodes are in the ON state and the third diode is in the OFF state, the high-frequency signal

is transferred substantially through only the first high-frequency-signal path.

13. A high-frequency-signal switching circuit according to Claim 12, wherein the reverse bias voltages are not less than about 0.9 volts.

14. A high-frequency-signal switching circuit according to Claim 7, wherein reverse bias voltages applied across the first and second diodes are large enough such that when the third diode is in the ON state and the first and second diodes are in the OFF state, the high-frequency signal is transferred substantially through only the second high-frequency-signal path, and a reverse bias voltage applied across the third diode is large enough such that when the first and second diodes are in the ON state and the third diode is in the OFF state, the high-frequency signal is transferred substantially through only the first high-frequency-signal path.

15. A high-frequency-signal switching circuit comprising:

a first high-frequency-signal path including:

a first switch;

a second switch;

a high-frequency amplifier stage connected between the first and second switches; and

a second high-frequency-signal path including a third switch connected in parallel with the first and second switches and the high-frequency amplifier stage; and

a switching-voltage supply section to switch the high-frequency amplifier stage between an operation state and an non-operation state, and to switch the first, second and third switches between an ON state and an OFF state,

wherein, when a switching voltage of the switching-voltage supply section has a first value, the high-frequency amplifier stage is in the operation state, the first and second switches are in the ON state, and the third switch is in the OFF state, so that a high-frequency signal is transferred through the first high-frequency-signal path, and when the switching voltage of the switching-voltage supply section has a second value, the high-frequency amplifier stage is in the non-operation state, the first and second switches are in the OFF state, and the third switch is in the ON state, so that a high-frequency signal is transferred through the second high-frequency-signal path.



16. A high-frequency-signal switching circuit according to Claim 15, wherein the high-frequency amplifier stage comprises an amplifier and the switching voltage is applied to a terminal of the amplifier to switch the high-frequency amplifier stage between the operation state and the non-operation state.

17. A high-frequency-signal switching circuit according to Claim 15, wherein the high-frequency amplifier stage has a high input impedance and a low output impedance.

18. A high-frequency-signal switching circuit according to Claim 15, wherein a first terminal of each of the first and second switches is connected to the switching-voltage supply section through a first resistor, and a second terminal thereof is connected to a reference potential through a second resistor.

19. A high-frequency-signal switching circuit according to Claim 15, wherein a resistance of each of the first and second resistors is specified such that, when the switching voltage has the first value, a voltage applied to the second terminal of the first switch is lower than that of the second switch, and when the switching voltage has the second value, the voltage applied to the second terminal of the first switch is higher than that of the second switch.

20. A high-frequency-signal switching circuit according to Claim 15, wherein the switching-voltage supply section comprises a band decoder, and selectively outputs a first-value switching voltage equal to a power-supply voltage and a second-value switching voltage equal to a reference potential.

21. A high-frequency-signal switching circuit according to Claim 15, wherein reverse bias voltages applied across the first and second diodes are large enough such that when the third diode is in the ON state and the first and second diodes are in the OFF state, the high-frequency signal is transferred substantially through only the second high-frequency-signal path, and a reverse bias voltage applied across the third diode is large enough such that when the first and second diodes are in the ON state and the third diode is in the OFF state, the high-frequency signal is transferred substantially through only the first high-frequency-signal path.

22. A high-frequency-signal switching circuit according to Claim 15, wherein the second high-frequency-signal path consists of the third switch.

23. A high-frequency-signal switching circuit according to Claim 22, wherein the high-frequency amplifier stage comprises an amplifier and the switching voltage is applied to a terminal of the amplifier to switch the high-frequency amplifier stage between the operation state and the non-operation state.

24. A high-frequency-signal switching circuit according to Claim 22, wherein a first terminal of each of the first and second switches is connected to the switching-

voltage supply section through a first resistor, and a second terminal thereof is connected to a reference potential point through a second resistor.

25. A high-frequency-signal switching circuit according to Claim 24, wherein a resistance of each of the first and second resistors is such that when the switching voltage has the first value a voltage applied to the second terminal of the first switch is lower than that of the second switch and when the switching voltage has the second value the voltage applied to the second terminal of the first switch is higher than that of the second switch.

26. A high-frequency-signal switching circuit according to Claim 22, wherein the switching-voltage supply section comprises a band decoder, and selectively outputs a first-value switching voltage equal to a power-supply voltage and a second-value switching voltage equal to a reference potential.

27. A high-frequency-signal switching circuit according to Claim 22, wherein reverse bias voltages applied across the first and second diodes are large enough such that when the third diode is in the ON state and the first and second diodes are in the OFF state, the high-frequency signal is transferred substantially through only the second high-frequency-signal path, and a reverse bias voltage

applied across the third diode is large enough such that when the first and second diodes are in the ON state and the third diode is in the OFF state, the high-frequency signal is transferred substantially through only the first high-frequency-signal path.

28. A method decreasing distortion in high-frequency-signal switching circuit, the method comprising:

forming a first high-frequency-signal path that includes a first diode, a second diode, and a high-frequency amplifier stage connected in series between the first and second diodes;

forming a second high-frequency-signal path that consists of a second diode connected in parallel between the first and second diodes and the frequency amplifier stage;

switching the high-frequency amplifier stage between an operation state and an non-operation state, and the first, second and third diodes between an ON state and an OFF state; and

transferring a high-frequency signal through the first high-frequency-signal path when the high-frequency amplifier stage is in the operation state, the first and second diodes are in the ON state, and the third diode is in the OFF state, and transferring the high-frequency signal through the second high-frequency-signal path when the high-frequency amplifier stage is in the non-operation state, the first and second diodes are in the OFF state, and the third diode is

in the ON state.

29. The method of Claim 28, further comprising limiting a voltage applied to a cathode of the first diode to less than that of the second diode when the high-frequency amplifier stage is in the operation state, the first and second diodes are in the ON state, and the third diode is in the OFF state, and limiting the voltage applied to the cathode of the second diode to less than that of the first diode when the high-frequency amplifier stage is in the non-operation state, the first and second diodes are in the OFF state, and the third diode is in the ON state.

30. The method of Claim 29, further comprising determining resistances to be connected to an anode of each of the first and second diodes to limit the voltages applied to the cathodes and connecting the resistances to the anodes of the first and second diodes.

31. The method of Claim 28, further comprising selectively outputting a first-value switching voltage equal to a power-supply voltage and a second-value switching voltage equal to a reference potential when switching the high-frequency amplifier stage between the operation state and the non-operation state, and the first, second and third diodes between the ON state and the OFF state.

32. The method of Claim 28, further comprising reverse biasing the first and second diodes such that when the third diode is in the ON state and the first and second diodes are in the OFF state, the high-frequency signal is transferred substantially through only the second high-frequency-signal path, and reverse biasing the third diode such that when the first and second diodes are in the ON state and the third diode is in the OFF state, the high-frequency signal is transferred substantially through only the first high-frequency-signal path.